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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,770	03/30/2004	Kazuhiko Matsumoto	36609	4956

116 7590 07/14/2006

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EXAMINER	
HAJNIK, DANIEL F	

ART UNIT	PAPER NUMBER
2628	

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/812,770	MATSUMOTO, KAZUHIKO	
	Examiner	Art Unit	
	Daniel F. Hajnik	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Claims 1-4 have been amended.

2. Claim 5 has been cancelled.

3. The objections to the drawings, and to claims 1, 3, and 5 have been withdrawn in response to amendments made by applicant.

Claim Rejections - 35 USC § 103

1. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abolfathi (US Pub 2003/0207227, herein referred to as "Abolfathi") in view of Tyrrell, III (US Patent 7062527, herein referred to as "Tyrrell") in further view of Gehr et al. (US Patent 5828847, herein referred to as "Gehr").

As per claim 1, Abolfathi teaches the claimed:

> a plurality of image display units

By teaching of:

> client computers 104-105
> (paragraph [0048])
> (display units)
>
> displaying a three-dimensional computer model
> (paragraph [0018], displaying upon request)

Abolfathi teaches the claimed:

> one or more volume data storage units for storing volume data necessary for the image display units

By teaching of:

> 3D volumetric data
> (paragraph [0038])
>
> transmitting the computer model from the treatment provider computer to the server
> (paragraph [0018])
>
> the storage ... of models
> (paragraph [0071])

Abolfathi teaches the claimed:

> formation of images requested by the image display units from the volume data storage unit via the network, process image data in accordance with image requests concerning angle and position issued from the image display units, and transmit image results to the image display units via the network

By teaching of:

> forming patient data visualization in response to a user request
> (paragraph [0014])

and by teaching of a variety of views (paragraph [0015]) where the views are from a variety of angles and positions. Here, the user requests are clients (image display units) and a volume data storage unit stores the 3-dimensional data concerning angles and positions. Further, the results are later transmitted to the client (image display units) for display via the network (paragraph [0071]).

Abolfathi teaches the claimed:

> image display units each including an input section and an output section transmit the image requests entered through the image sections to the image data server computer via the network, receive the image results processed by the image data server computers and outputs the image results to the output sections

By teaching of:

> **transmitting teeth data associated a patient** from a dental server to a treatment provider computer over the Internet **upon an authorized request**; **displaying a three-dimensional computer model** of the teeth **at the treatment provider** computer using a browser
> (paragraph [0018], some text bolded for clarity)
>
> client computers 104-105
> (paragraph [0048])

Here, a client computer (a treatment provider)(image display unit) is able to make request to the server (input) and receive rendered images for displaying from the server (output).

Abolfathi teaches the claimed:

> volume data storage unit transmits the necessary volume data to the image data server computers in accordance with requests issued from the image data server computers

By teaching of:

> The data is then digitized, **stored on the server 106, and made available to the treatment providers** and the patient **over the Internet** (238).
> (paragraph [0063], some text bolded for clarity)
>
> the storage and transmission of models
> (paragraph [0071])

where model transmission is associated with a request that would require the necessary volume data.

Abolfathi does not explicitly teach the claimed:

> a plurality of image data server computers

Tyrrell teaches the claimed limitation by teaching of server computers for rendering (figure 1, the servers are labeled as '34', also see col 4, lines 20-21).

Abolfathi does not explicitly teach the claimed:

> a computation server manager for managing data copying via a network, wherein the image data server computers receive volume data necessary for formation of images requested by the image display units from the volume data storage unit via the network process image data

Tyrrell teaches the claimed limitation by teaching of:

> A "schedule server"
> (figure 1, piece 38)
> (computation server manager)
>
> "Manager Applications"
> (in figure 7)
> (associated with schedule server, 38, also see col 11, lines 5-8)
>
> A client, such as client 32, may submit a render job to a schedule server 24, which is a component of schedule server host 38 that distributes the render job among one or more render hosts 34
> (col 4, lines 7-10)

It would have been obvious to one of ordinary skill in the art to combine Abolfathi and

Tyrrell. Tyrrell teaches one advantage of the combination by teaching of:

> In particular, the method can be used in a transient environment, such as where computers and/or servers are starting up, or shutting down
> (col 12, lines 32-34)

where Abolfathi would benefit from the more reliable network for image data.

Abolfathi does not explicitly teach the claimed:

> the server manager makes a decision to switch data processing for the plurality of image display units so that a part of the data processing performed by an operative one of the image data server computers will be replaced by data processing performed by another suspended one including a state of low load of the image data server computers

Gehr teaches the claimed limitation by teaching of:

> The **server switching process SSP can monitor present load activity** and maintain statistics of past load activity
> (col 9, lines 39-40)

> In addition, **short-term over-loads can trigger a server switch** to automatically and instantaneously **respond to the overload**
> (col 10, lines 2-4)

It would have been obvious to one of ordinary skill in the art to combine Abolfathi, Tyrrell, and Gehr. Gehr teaches one advantage of the combination by teaching of:

> In this manner, the system provides dynamic server switching **for maximum service availability without consuming significant processing resources**
> (abstract)

where Abolfathi and Tyrell would benefit from the added functionality.

As per claim 2, Abolfathi does not explicitly teach the claimed limitation.

Gehr suggests the claimed limitation by teaching of:

> Thus, the **dynamic server switching system avoids system bottlenecks and maintains a rapid exchange of communication** between client and server so that the client processes **obtain the benefit of the rapid data retrieval capability of the automated cartridge library system**
> (col 11, lines 18-23)

where rapid data retrieval of a cartridge library system would suggest the use of the claimed "control function" and the claimed "addition information is copied". It would have been obvious to one of ordinary skill in the art to use the claimed limitations when given the capabilities of Gehr. Gehr teaches of avoiding bottlenecks and maintaining rapid exchange during server switching. Such capabilities can be achieved using the claimed "control function" and the claimed "addition information is copied" because these features deal with eliminating bottlenecks in processing by quickly transferring needed data to other servers (i.e. copying additional data). One advantage to such a

copy of additional information and maintaining a control functions to avoid bottlenecks in processing and efficiently transferring needed data to additional servers that require the data in order to process.

As per claim 3, the reasons and rationale in regards to the claimed handling over of data during switching and in regards the claimed copying of additional data is incorporated herein from claim 2.

Abolfathi does not explicitly teach the claimed:

> Claim 3 (Currently Amended): The multisystematic volume rendering image processing system as claimed in claim 1, wherein when overload is imposed on computation of volume rendering which is being carried out by a first image data server computer the server manager judges whether to make a part of the volume rendering be handed over to a second image data server computer having idle computation resources or not

Gehr teaches the claimed limitation by teaching of:

> The **server switching process SSP can monitor present load activity** and maintain statistics of past load activity
> (col 9, lines 39-40)
>
> In addition, **short-term over-loads can trigger a server switch** to **automatically** and instantaneously **respond to the overload**
> (col 10, lines 2-4)
>
> **This system dynamically load balances** in the face of failures, handles transient faults and can use a neuromorphic processing element to monitor system activity
> (abstract)

where such functionality requires a server manager judging process in order for the switching to be automatic. Otherwise, the automatic load balancing and server switching process would not work without a proper judging function. Further, by

dynamically load balancing the system can look for server computers having idle computation resources. One advantage to using this feature is in order to better utilize the network resources and avoid overloads which may result in delayed client responses.

As per claim 4, the reasons and rationale in regards to the claimed handling over of data during switching and in regards the claimed copying of additional data is incorporated herein from claim 2.

Abolfathi does not explicitly teach the claimed:

> The multisystematic volume rendering image processing system as claimed in claim 1, wherein the server manager stores identification names of the volume data transmitted from the volume data storage unit and destination image data server computers in a memory in advance;

However, Abolfathi suggests this limitation by teaching of:

> "the tooth models .... by the corresponding patients"
> (paragraph [0071])

where such functionality can need identification names to organize the numerous models. Further, Abolfathi teaches of:

> "The dental server 106 stores information associated with patient history on-line in a secure manner"
> (paragraph [0049])

where such a security concern would be a good reason and motivation to transmit identification names in advance to prevent network traffic confusion during transmission.

Abolfathi does not explicitly teach the claimed:

> when the volume data storage unit is requested to

> send volume data, the server manager inquires of the memory whether the same volume data are already sent or not, after the volume data is sent from the volume data storage unit;
>
> when the same volume data are already sent, the server manager judges whether the volume data are collected to one of the image data server computers or not;

However, Abolfathi suggests this limitation by teaching of:

> "To reduce transmission problems arising from large size of the 3D model, in one embodiment data associated with the model is compressed" (paragraph [0071])

The reference suggests these limitations because compressing also deals with the need to reduce network transmission. Likewise, the claimed features of checking for the need for additional transmissions (through checking if already sent and collected) over the network also is used for reducing network transmission. Both these techniques are tools used to achieve this goal. Thus, the reference suggests the claimed limitation. One advantage to using the claimed feature may be to reduce repeated and unnecessary transmissions in order to improve the network efficiency and make it as fast as possible. Further, this would reduce transmission time associated with large sized models.

Response to Arguments

2. Applicant's arguments filed have been fully considered but they are not persuasive.

Applicant argues the prior art rejections in regards to claims 1-4 are improper because applicant argues:

> "replacing data processing performed by an operative image data server computer with data processing performed by another image data server computer"
> (middle of pg. 9 of remarks)
>
> "This does not teach or suggest replacing data processing performed by an operative image data server computer with data processing performed by another suspended one including a state of low load of the image data server computers"
> (toward bottom of pg. 9)
>
> "Oikawa fails to teach or suggest 'additional information is copied from the operative image data server computer to the destination image data server computer'"
> (towards bottom of pg. 10)
>
> "Alford fails to teach or suggest operative and suspended image data server computers as required by claim 2"
> (toward top of pg. 11)
>
> "Oikawa's teaching of rendering parameters supplied from an input device 6 fails to teach or suggest the claimed additional information copied from a first image data server computer to a second image data server computer"
> (top of pg. 12)
>
> "Oikawa's teaching of rendering parameters supplied from an input device 6 fails to teach or suggest the claimed additional information copied from an image data server computer to be suspended to another image data server computer"
> (middle of pg. 12)

The examiner maintains that the prior art rejections in this regard are proper because these arguments are based upon claim language amended after the writing of the previous office action. In particular, these arguments are based upon the amended claimed language of changing the previously claimed "image data processing unit" to

the claimed "image data server computer". The prior art rejections of this office action have been changed to address the new amended claim language.

Applicant argues:

> Abolfathi's teaching of data compression does not at all suggest inquiring of a memory whether a same volume data are already sent or not, as required by claim 4.
> (top of pg. 13)

The examiner maintains that the prior art rejection in this regard is proper because one ordinary of skill in the art would recognize that the reference does suggests the claimed feature. In particular, Abolfathi teaches of:

> "To reduce transmission problems arising from large size of the 3D model, in one embodiment data associated with the model is compressed" (paragraph [0071])

Here, the reference is compressing in order to reduce transmission of a lot of data (large size 3D model files). The claimed feature of "inquiring of a memory whether a same volume data are already sent or not" can be utilized to achieve the same goal for the same reasons. This is due to the claimed subject matter relating to transmitting and collecting data over a network. Thus, the claimed limitation can provide the advantage to reduce unnecessary, repeated data transmissions and keep transmissions to a minimum. Likewise with compression, there is an advantage to compress in order to reduce the amount of volume data transmitted. Thus, the reference suggests using the claimed limitation because achieve a common goal.

Conclusion

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel F. Hajnik whose telephone number is (571) 272-7642. The examiner can normally be reached on Mon-Fri (8:30A-5:00P).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka J. Chauhan can be reached on (571) 272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel Hamilton 7/5/06

DFH

ULKA CHAUHAN
SUPERVISORY PATENT EXAMINER